

REMARKS

The Office Action mailed April 3, 2003, has been received and reviewed. Claims 1 through 26 are currently pending in the application. Claims 1 through 14, 21, 22 and 24 stand rejected. Claims 15 through 20, 23, 25 and 26 have been allowed. Applicants have canceled claims 1-10, 21, 22, and 24 and respectfully request reconsideration of the application as amended herein and in view of the remarks set forth below.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 3,362,813 to Ziolkowski in view of U.S. Patent No. 4,010,375 to Wachter et al. and U.S. Patent No. 5,926,516 to Rudnick et al.

Claim 11 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ziolkowski (U.S. Patent No. 3,362,813) in view of Wachter et al. (U.S. Patent No. 4,010,375) and Rudnick et al. (U.S. Patent No. 5,926,516). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

Claim 11 is directed to a spent nuclear fuel storage system configured for thermal neutron absorption and corrosion resistance comprising: a poisoned member, the member being substantially comprised of a cast stainless steel alloy, wherein the alloy comprises the recited composition.

The Examiner cites Ziolkowski as teaching a cast austenitic stainless steel alloy used for neutron absorption with the following composition by weight: 0.2-3% Gd, 2-26% Cr, up to 4% Mo, up to 10% Mn, 3.5-22% Ni, 5-25% ferrite, up to 1% P and S, up to 0.25% C, up to 2% Si, and up to 0.7% N. The Examiner cites Wachter to establish that it is well known in the art that a

poisoned member is the same as a neutron-absorbing material. The Examiner cites Rudnick as teaching an absorption structure that is used in a fuel assembly storage basin of a nuclear reactor to receive spent fuel assemblies, wherein the structure is made from austenitic steels and may contain gadolinium. The Examiner then states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the alloy of Ziolkowski as part of a spent nuclear fuel storage system such as taught by Rudnick, particularly since Rudnick teaches that absorber parts permit the compact storage of neutron-emitting components, especially fuel assemblies from nuclear reactors. Applicants respectfully traverse this rejection.

Applicants submit that the combination of Ziolkowski, Wachter, and Rudnick fails to teach or suggest all of the limitations of claim 11 of the presently claimed invention. More specifically, the references relied upon by the Examiner fail to teach or suggest a poisoned member which is substantially comprised of a cast stainless steel alloy. Rather, the combination of Ziolkowski, Wachter, and Rudnick would lead one of ordinary skill in the art to produce a spent nuclear fuel storage system having a poisoned member comprised of a wrought or forged stainless steel alloy of the composition recited in Ziolkowski.

While the alloys disclosed by Ziolkowski may first be cast into ingots at an intermediate stage of manufacturing and before being hot worked or forged, Ziolkowski teaches using the alloys in nuclear applications in the wrought state. As stated in Ziolkowski, “a principal object of the present invention [is] to provide an essentially stainless steel alloy containing one or more of the elements gadolinium, europium, samarium and dysprosium which may be readily hot worked.” (Column 1, Lines 57-61, emphasis added). Ziolkowski further states, “[t]he alloy of the present invention is particularly well suited for use in providing wrought products which may be used where parts having a high thermal neutron absorption cross-section are required.” (Column 1, Lines 62-70, emphasis added). Ziolkowski further states, “[t]hus, contrary to the usual practice my alloy is rendered hot workable by purposely adjusting the balance of the alloying elements so that when the alloy is cast as an ingot it contains from about 5% to 25% ferrite.” (Column 1, Lines 45-50, emphasis added). Again, Ziolkowski states, “[t]he proper balance of the alloying elements in my alloy is highly critical and must be carefully maintained so as to provide a minimum of about 5% ferrite and no more than about 25% ferrite in the as-cast

ingot. Unless this critical balance is maintained the alloy is not hot workable on a commercial scale.” (Column 2, Lines 24-29, emphasis added).

Applicants submit that the disclosure of Ziolkowski teaches only the uses of wrought or forged products. Reference to example alloys 1-3 in the Ziolkowski patent further supports such a position. Example alloys 1-3 in the Ziolkowski patent are each forged or hot worked products. (Column 4, Lines 41-66).

Applicants further submit that Wachter and Rudnick also fail to teach or suggest a cast stainless steel alloy configured for a spent nuclear fuel storage system. Rudnick merely teaches that austenitic stainless steels can be used in a fuel assembly storage basin but fails to teach or suggest a cast stainless steel of the composition in claim 11.

Therefore, Applicants submit that the combination of Ziolkowski, Wachter, and Rudnick fails to teach or suggest the present invention of claim 11. Instead of teaching the present invention of claim 11, the combination of Ziolkowski, Wachter, and Rudnick teaches a spent nuclear fuel storage system having a poisoned member comprised of a wrought or forged stainless steel alloy of the composition recited in Ziolkowski.

Applicant, therefore, submits that claim 11 is allowable over Ziolkowski, Wachter, and Rudnick, whether considered individually or in combination, and respectfully request reconsideration and allowance of the same.

Obviousness Rejection Based on U.S. Patent No. 3,362,813 to Ziolkowski in view of U.S. Patent No. 4,010,375 to Wachter et al. and U.S. Patent No. 5,926,516 to Rudnick et al. as applied to claim 11 above, and further in view of U.S. Patent No. 4,292,528 to Shaffer et al.

Claims 12 through 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ziolkowski (U.S. Patent No. 3,362,813) in view of Wachter et al. (U.S. Patent No. 4,010,375) and Rudnick et al. (U.S. Patent No. 5,926,516) as applied to claim 11 above, and further in view of Shaffer et al. (U.S. Patent No. 4,292,528). Applicants respectfully traverse this rejection, as hereinafter set forth.

Claims 12 through 14 depend from claim 11. As set forth above, independent claim 11 is directed to a spent nuclear fuel storage system configured for thermal neutron absorption and

corrosion resistance comprising: a poisoned member, the member being substantially comprised of a cast stainless steel alloy, wherein the alloy comprises the recited composition.

The Examiner proposed to combine the teachings of Ziolkowski, Wachter and Rudnick as set forth above herein. The Examiner cites Shaffer as teaching a cask for radioactive material, such as spent nuclear fuel, which includes various walls and compartments formed of a neutron absorbing material. The Examiner then states that it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to use the stainless steel of Ziolkowski to form the various cask components of Shaffer since Shaffer teaches that the cask material could be made from stainless steel. Applicants respectfully traverse this rejection.

As set forth in detail above with respect to claim 11, Applicants submit that Ziolkowski, Wachter and Rudnick fail to teach or suggest a poisoned member which is substantially comprised of a cast stainless steel alloy of the recited composition. Rather, Ziolkowski clearly teaches the formation of a poisoned member which is wrought or forged.

Applicants further submit that Shaffer fails to teach or suggest a poisoned member which is substantially comprised of a cast stainless steel alloy of the recited composition. As such, Applicants submit that claims 12 through 14 are allowable over the combination of Ziolkowski, Wachter, Rudnick and Shaffer, either considered individually or in combination, and respectfully request reconsideration and allowance thereof.

CONCLUSION

Claims 11-20, 23, 25 and 26 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



Stephen R. Christian
Registration No. 32,687
Attorney for Applicants
P.O. Box 1625
Idaho Falls, ID 83415-3899
Phone: (208) 526-9140
Fax: (208) 526-8339

Date: July 1, 2003